



## DEMAND CHAIN MANAGEMENT PERFORMANCE ASSESSMENT AND STRATEGY DEVELOPMENT OF VIRGIN COCONUT OIL INDUSTRY CASE STUDY: BUMDES BUMI LESTARI

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### ABSTRACT

Virgin Coconut Oil BUMDes Bumi Lestari has supply chain and demand chain activities. There was an imbalance in oil production which reached 1,000 liters per month with a relatively low sales volume. The aim of this research is to apply demand chain management performance assessment on a Virgin Coconut Oil BUMDes Bumi Lestari, Desa Selemadeg, Kec. Selemadeg, Kab. Tabanan. The method used in this research is performance appraisal with the demand chain operation reference model approach, AHP weighting, OMAX, traffic light system, and SWOT analysis. The results showed that the demand chain management performance in the BUMDes Bumi Lestari Virgin Coconut Oil business was 6,388 which was in the range of  $3.01 \leq 6,388 \leq 8.00$  (quite good). The results of the SWOT analysis recommend improvements in performance such as maintaining cooperation with suppliers, maintaining cooperation with farmer groups, maintaining the quality of Virgin Coconut Oil, improving customer service, adding workers to manage marketing, improving promotional strategies, optimizing village transportation, differentiating target of fill rates, response time, and average days per schedule change based on customer type, cooperating with the Virgin Coconut Oil derivative product industries, evaluation of customer satisfactions, and cooperating with competitors.

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## I. INTRODUCTION

Value Chain is mentioned as a combination of supply chain and demand chain according to Walters & Rainbird (in Thublier, et al., 2014). The basic concepts and ultimate goals of the value chain, supply chain and demand chain are no different, emphasize the importance of a coordinated relationship between business activities and company competitiveness, and are considered synonyms. According to Porter

(1998), the value chain consists of activities that aim to generate profits (margin). There are 2 (two) activities in value chain analysis, namely primary activities and support activities. This main activity describes the combination of supply chain and demand chain, related to the definition put forward by Walters & Rainbird (in Thublier, et al., 2014). Figure 1 shows the concept of a value chain that combines supply chain and demand chain.

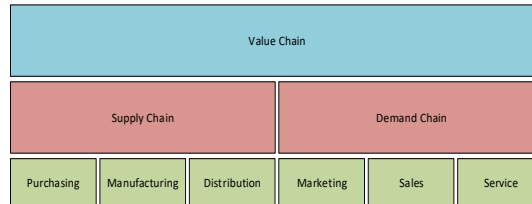


Figure 1. Value Chain Concept Combined Supply Chain and Demand Chain  
Source: Wikimedia.org (2010)

According to Christopher (in Thublier, et al., 2012) demand chain is a network that shows how demand occurs. There are conditions where demand is a need that already exists in the field, there are conditions where demand can be grown in the field. The practice of managing and coordinating the supply chain from the end customer back to the supplier is called Demand Chain Management (DCM). DCM carries out activities that aim to improve customer service, market share, sales, new products, after-sales service and customer satisfaction (Siahaya, 2019). DCM aims to attract as many consumers as possible to optimize the company's capacity (Laptaned, 2009). In a business, of course, the company really wants to create customer demand to be able to get an advantage, especially for small businesses that take advantage of commodities in the area.

One of the BUMDes in Selemadeg District, namely BUMDes Bumi Lestari (BBL), produces VCO (Virgin Coconut Oil) oil. BBL VCO oil supply chain activities include production, raw material preparation, distribution and demand chain activities which include: sales, promotion and service. In the BBL demand chain activities, there was a problem in marketing and sales, where BBL was not able to maximize production capacity due to low sales volume. There is an imbalance in oil production which reaches 1,000 liters per month, not comparable to the less than optimal sales volume of BBL VCO oil. Still have

little customers, lost many customers, there is no routine work evaluation, don't have specific planning strategies to manage sales, lack of a promotion strategy, and competition are the causes of these problems. Demand chain operations performance evaluation are very important to do because from that performance evaluation, we can develop several strategies to overcome the demand problem. (Widiastuti & Winda, 2013).

## II. METHODOLOGY

The approach used in this study are Demand Chain Operations Reference (DCOR) model developed by Laptaned (2009), Analytical Hierarchy Process (AHP), Scoring System with Objective Matrix (OMAX), System Evaluation with Traffic Light System, and Proposed Performance Improvement Using SWOT Analysis.

## III. RESULTS AND DISCUSSION

### 1. Assessment of Demand Chain Management Performance with the SCOR Model

Key Performance Index (KPIs) were determined based on data availability, adjusted to company conditions and obtained 14 KPIs which are presented in Table 1.

Table 1. 14 KPIs of BBL VCO Oil

KPIs Number	KPIs Code	KPIs
KPI-1	SM-M-1/2	Customers reached by the campaign
KPI-2	SM-M-2/2	Campaign response rate
KPI-3	SM-SF-1/1	Volume of sales
KPI-4	D-R-1/1	Response time
KPI-5	D-CLT-1/1	Lead time during delivery
KPI-6	D-I-1/1	Inventory days of supply
KPI-7	Q-QL-1/1	Number of non defects
KPI-8	R-FR-1/1	Case fill rate
KPI-9	R-POF-1/2	Orders shipped complete
KPI-10	R-POF-2/2	No damage
KPI-11	F-DCRT-1/1	Average days per schedule change
KPI-12	F-DF-1/1	Level of flexibility for delivery
KPI-13	SL-CS-1/1	Customer satisfaction level
KPI-14	SL-CR-1/1	Customer relationship level

The performance appraisal model can be combined with the scoring system model, such as the OMAX (objectives matrix) model to determine the overall performance of the company. In the OMAX model, the performance value is filled with 2019 achievements, level 10 is filled with the best value from the results of KPI achievement, level 0 (zero) is the lowest KPI value, and level 3 (three) is the KPI achievement in

2018. Score is filled with the location of the performance value at what level, the weight is filled with the KPI weight value using AHP, and the value is obtained from the multiplication result between the level of KPI achievement and the weight of the weight of each KPI. The results of data processing using the Objective Matrix and Traffic Light System are presented in Table 2.

Table 2. OMAX Scoring Results and Traffic Light System Evaluation

Performance	Sales and Marketing			Distribution			Quality	Reliability			Flexibility		Service Level		
	KPIs	Customers reached by the campaign (orang)	Campaign response rate (%)	Volume of sales (Rp)	Response time (hari)	Lead time/days during delivery (hari)		Inventory days of supply (hari)	Number of non defects (%)	Case fill rate (%)	Orders shipped complete (%)	No damage (%)	Average days per schedule change (hari)	Level of flexibility for delivery (%)	Customer satisfaction level (%)
Performance (2019)	4	44%	Rp19.621.667	3	0,08	20	100%	95%	100%	100%	4	95%	84%	29%	
Level	10	11	65%	Rp28.920.000	0,5	0,08	14	100%	100%	100%	2,0	100%	91%	60%	
	9	11	65%	Rp25.718.244	0,8	0,08	15	100%	100%	100%	2,3	100%	90%	60%	
	8	11	65%	Rp22.516.488	1,1	0,08	16	100%	100%	100%	2,6	100%	89%	60%	
	7	11	65%	Rp19.314.732	1,5	0,08	18	100%	100%	100%	2,9	99%	88%	60%	
	6	11	65%	Rp16.112.976	1,8	0,08	19	100%	100%	100%	3,1	99%	86%	60%	
	5	11	65%	Rp12.911.220	2,1	0,08	21	100%	100%	100%	3,4	99%	85%	60%	
	4	11	65%	Rp9.709.464	2,4	0,08	22	100%	100%	100%	3,7	99%	84%	60%	
	3	11	65%	Rp6.507.708	3	0,08	23	100%	100%	100%	4,0	98%	83%	60%	
	2	9	58%	Rp4.338.472	3,5	0,10	36	100%	92%	93%	99%	4,7	82%	79%	50%
	1	6	51%	Rp2.169.236	4,3	0,11	48	99%	83%	87%	98%	5,3	66%	75%	39%
0	4	44%	Rp0	5	0,13	60	99%	75%	80%	97%	6,0	50%	71%	29%	
Score	0	0,0	7,1	3	10	5,1	10	2,4	10	10	3	2,8	4	0	
Weight	0,043	0,021	0,128	0,047	0,018	0,010	0,288	0,057	0,034	0,136	0,047	0,016	0,052	0,104	
Value	0,000	0,000	0,908	0,140	0,179	0,052	2,884	0,135	0,340	1,358	0,140	0,044	0,208	0,000	
Index per Category	0,908			0,371			2,884	1,833			0,184		0,208		
Total Value Index	6,388														
Performance Status	Quite Good														

The evaluation result of each KPI using a traffic light system shows that there are 4

(four) KPIs in the green zone (lead time during delivery, number of non defect,

orders shipped complete, and no damage), 3 (three) KPIs in the yellow zone (volume of sales, inventory days of supply, and customer satisfaction level), and 7 (seven) KPIs in the red zone (customer reached by the campaign, campaign response rate, response time, case

Determination of internal factors is carried out based on the KPI in the performance appraisal which has been identified again as the strengths and weaknesses of BBL:

#### 1. Strengths

Strengths based on the results of performance appraisal with DCOR model, strengths are the KPIs in green zone.

- a. Speed of time in delivering oil to customers (KPI *lead time during delivery*)
- b. High product quality (KPI *number of non defects*)
- c. Able to meet the number of orders on demand (KPI *orders shipped complete*)
- d. Good quality bottle and good packaging (KPI *no damage*)

#### 2. Weakness

Weaknesses are based on the results of performance appraisal with DCOR model, such as KPIs in yellow and red zones.

- a. The acquisition of new consumers from the results of the promotion still low (KPI *customers reached by the campaign*)
- b. Low response rate for acquiring new customers from the results of the promotion (KPI *campaign response rate*)
- c. Sales volume not optimal (KPI *volume of sales*)
- d. Speed of fulfilling orders not optimal (KPI *response time*)
- e. Ability in the circulation of oil supplies not optimal (KPI *inventory days of supply*)
- f. The ability to fulfill all orders at the beginning of shipment not optimal (KPI *case fill rate*)

fill rate, average days per schedule change, level of flexibility for delivery and customer relationship level).

## 2. Strategy Determination Using SWOT Analysis

- g. The speed to fulfilling orders that changed schedule not optimal (KPI *average days per schedule change*)
- h. Service delivery not flexible (KPI *level of flexibility for delivery*)
- i. Level of customer satisfaction (KPI *customer satisfaction level*)
- j. Level of customer relationships (KPI *customer relationship level*)

External factors obtained from discussions with the head of the business unit, external factors are divided into 2 (two) parts, opportunities and threats. Opportunities and threats that will be obtained by VCO BBL business unit:

#### 1. Opportunities

- a. Coconut raw materials supply is very abundant.
- b. Potential market is quite large such as spa, gift shops, pharmacies, beauty industry, food industry, health industry, and exports VCO oil.
- c. Human resources (HR) availability as workers to produce VCO oil is still not fully utilized.
- d. Technological development become one of the most potential opportunities for VCO BBL to maximize efforts in selling.

#### 2. Threats

- a. BBL's ignorance of market desires.
- b. There are competitors in other areas such as Singaraja and Karangasem there are also similar VCO businesses that already well-known and even capable doing their own exports.

The results of the SWOT matrix strategy are presented in Table 3.

Table 3. SWOT Strategy Matrix

	<b>Strengths</b>	<b>Weakness</b>
	<p><b>Internal Factors</b></p> <p>S1. Speed of time in delivering oil to customers                      S2. Good product quality                      S3. Able to meet the number of orders on demand                      S4. Good quality bottle packaging and oil packaging</p>	<p>W1. The acquisition of new consumers from the results of the promotion still low                      W2. Low response rate for acquiring new customers from the results of the promotion                      W3. Sales volume not optimal                      W4. Speed of fulfilling orders not optimal                      W5. Ability in the circulation of oil supplies is not optimal                      W6. The ability to fulfill all orders at the beginning of shipment not optimal                      W7. The speed of fulfilling orders that have changed schedule not optimal                      W8. Service delivery not flexible                      W9. Level of customer satisfaction                      W10. Level of customer relationships</p>
<b>External Factors</b>		
<b>Opportunities</b>	<b>Strategy S-O</b>	<b>Strategy W-O</b>
<p>O1. HR availability                      O2. Raw material supply                      O3. Potential Market                      O4. Technological development</p>	<p>SO-1 Maintaining good cooperation with suppliers                      SO-2 Maintaining good relations with farmer groups</p>	<p>WO-1 Add workers in the VCO BBL business to focus on managing marketing, and customers                      WO-2 Enhance promotion strategies optimally by distributing brochures, creating BBL websites, social media, participate in national bazaar events or webinars about UMKM                      WO-3 Optimizing village-owned transportation modes that can be used for delivery                      WO-4 Differentiate the target fill rate, response time and average days per schedule change based on customer type                      WO-5 Looking for and collaborating with industrial derivative products that use VCO such as manufacturers of scrubs, soap, other beauty products, health products, and food</p>
<b>Threats</b>	<b>Strategy S-T</b>	<b>Strategy W-T</b>
<p>T1. Market demand                      T2. Competitor</p>	<p>ST-1 Improve and maintain the quality of VCO                      ST-2 Improve good service to VCO BBL consumers</p>	<p>WT-1 Routine evaluating customer satisfaction every month or per customer who has purchased VCO BBL                      WT-2 Establish cooperation with competitors who have carried out their own exports</p>

#### IV. CONCLUSIONS

The results of *demand chain management* performance of BBL VCO oil business unit is 6,388 (quite good) in the range of  $3.01 \leq 6.38 \leq 8.00$ , with 4 (four) KPIs in the green zone, 3 (three) KPIs are in the yellow zone, and 7 (seven) KPIs are in the red zone. The results of the strategy recommendations are, maintaining cooperative relationships with suppliers, expanding market share, maintaining good relations with farmer groups, always maintaining the quality of VCO, improving service to consumers, adding workers in business units to focus on managing marketing and customers, improving promotional strategies, optimizing transportation mode facilities owned by the village, differentiating target of KPIs (fill rate, response time and average days per schedule change) based on customer type, establishing cooperation with the VCO oil derivative product industry, routinely evaluating customer satisfaction, and collaborate with competitors who have already exported themselves.

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